President William Oxley Thompson had consented to act as honorary chairman, but later found it impossible to be present, and Miss Freda Detmers, president of the club, presided. The program was intended to cover the various phases of Darwin's life work as the following list of subjects will indicate: "Darwin's Character and Method of Work," Professor F. L. Landacre; "The Influence of Darwin's Work in Geology," Professor G. D. Hubbard; "Darwin's Contributions to Zoological Science," Professor Herbert Osborn; "Darwin in His Relationship to British Stockmen," Professor C. S. Plumb; "Darwin's Contributions to Horticultural Science," Professor V. H. Davis; "The Work of Darwin in Physiological Botany," Professor A. Dachnowski; "Darwin's Contributions to Botany," Professor J. H. Schaffner; "Darwin and Modern Philosophy," Professor A. E. Davies; "Darwin and Modern Psychology," Professor D. R. Major.

UNIVERSITY AND EDUCATIONAL NEWS

THE appropriations committee of the Pennsylvania House of Representatives has reported a bill recommending an appropriation of $700,000 to the University of Pennsylvania.

IT is said that Dalhousie University is likely to be removed from Halifax, N. S., to the city of Dartmouth on the opposite side of the harbor. This city has offered a free site and about $100,000 for buildings.

THE governor of Colorado has signed a bill permitting the state university to conduct the last two years of its medical course in the city of Denver.

THERE has been introduced in the New York assembly a bill which provides that five members of the board of trustees of Cornell University shall be appointed by the governor, his appointments to be subject to the approval of the senate.

A ROYAL commission has been appointed to consider the position and organization of university education in London.

THE inauguration of Dr. Richard C. MacLaurin as president of the Massachusetts Institute of Technology will take place on Monday, June 7, at Symphony Hall. A committee of the corporation, faculty and alumni has been appointed to take charge of the ceremony.

MR. R. H. WHITBECK, of the New Jersey State Normal School, Trenton, N. J., has been appointed assistant professor of geology at the University of Wisconsin. He will give courses especially intended for the preparation of teachers, dealing primarily with applied geography and with materials available for secondary school teaching and methods of presenting physical geography, geography and geology.

DR. EDMUND LANDAU, docent at Berlin, has been appointed professor of mathematics at Göttingen.

DISCUSSION AND CORRESPONDENCE

CITY BOYS VERSUS COUNTRY BOYS

TO THE EDITOR OF SCIENCE: In your issue of February 12 Mr. W. J. Spillman, under the title "Education and the Trades," makes, with regard to the birthplaces of leading Americans, the following surprising statement:

> I believe there are some things which have higher pedagogic value than anything taught in our schools to-day, else why is it that with only 29 per cent. of our population actually living on the farm, with miserably poor school facilities as compared with our city population, this 29 per cent. furnishes about 70 per cent. of the leaders in every phase of activity in this country?

I say surprising, because any one who is familiar with modern investigations in the inheritance of mental qualities in man, must see that such a supposition, if it were indeed a fact, would seriously clash with the conclusions drawn from a number of researches otherwise harmonious and mutually supporting.

This point I will discuss later, but now let us test the facts. Does the farm produce more than its share of leading Americans? Such a question must be answered on a statistical, impartial, and as far as possible, scientific basis. It is first necessary to determine who are the "leaders in every phase of activity in this country." I have turned to "Who's

Who in America" to answer this question. This book has already been successfully used in several sociological studies, and has great value as a starting point for such researches. The editor doubtless tries to be as impartial and comprehensive as possible; but its greatest value to one who wishes to answer a question similar to the present discussion, is that here he finds a list of names prepared by some one else, without any idea or bias in relation to the investigator's present problem. Thus the first, and one of the most important requirements is obtained, the subjective element is eliminated.

Some will not be willing to accept conclusions draw from a list which like this doubtless has certain flagrant omissions, and where he sees names that he considers should not have been included. If he will stop for a moment and think, he will see that the very objection he raises only argues in the other direction from what he supposes. If, for instance, I find a marked correlation between city birth and more or less notable subsequent achievement, drawn from an imperfect list, the correlation would be even higher were the list of names ideally perfect.

In "Who's Who in America" the birthplaces are given in nearly every instance, although they seldom enable one to differentiate between farm or village. This difficulty can, however, be overcome by making the question one of urban as against non-urban nativity.

The leaders of to-day are about fifty years old on the average, so we must go back a half century and picture American population as it was then distributed. According to the census of 1860, there were 5,072,256 persons living in cities of over 8,000 inhabitants, out of a total population of 31,443,321, or 16.1 per cent. This standard of 8,000 or more is the one arbitrarily taken by the census bureau as constituting a city, and is so used to illustrate the growth of urban populations. There were ninety-six such cities, and a list of them is given in the "Annual Cyclopedia" for 1861. It is easy then to see if these cities have done better or worse than might be expected in producing leading men. Under initial A in "Who's Who in America," we find 128 born in cities out of 433, or 29.6 per cent. as against the 16.1 per cent. expected.

Under initial B, we find 404 out of 1,477, or 27.5 per cent.

Under initial C, we find 362 out of 1,143, or 31.7 per cent.

Under initial D, we find 213 out of 676, or 31.6 per cent.

Under initial E, we find 97 out of 273, or 35.6 per cent.

For the sake of being on the safe side I have added all the unrecorded birthplaces to the suburban and rural, and yet the latter fail to produce their proper quota in every single group, and in fact every little group of fifty or a hundred taken at random alphabetically will show the same result.

It seems unnecessary to carry investigation further to establish the fact that the urban beats the non-urban by nearly two to one. The towns, villages and farms should have produced more than five times as many leaders as the cities. They have failed to produce more than about twice as many. Thus the entire non-urban which should have given rise to about 85 per cent. of the total has only produced about 70 per cent. As a great many persons are recorded as born in towns or villages, it is evident that the number from actual farms must be considerably under Mr. Spillman's 70 per cent., at least as far as the evidence drawn from this book is concerned. The inference is that since the cities beat the non-urban districts as a whole, the towns and villages would make a proportionately better showing than the farms, were the necessary data given.

Now, as to its bearing on the question of heredity. It is an easily verified fact that talent tends to be drawn by, and to locate itself in the great centers of human activity. If we turn to the geographical index in the back part of our same biographical reference volume, we find that the great cities, New York, Chicago, Boston, etc., show two or three times as many names as would be expected merely from their populations. I think no one will question the fact that there has been a migration and selection of the most able men, especially the ambitious and gifted young

men, towards the large cities and away from the small towns and farms. This change is in process at present, and must have been going on for some time. Thus there is every reason to suppose that by the year 1860 (if not very much earlier than this) there had already taken place a part at least of this same phenomenon. So that the distribution of talent was then somewhat as it is to-day, concentrated about the cities.[1] Now if mental traits are inherited, the cities must show a higher proportionate birth of talent than the country, and our observed facts are only what we might expect.

Of course it is impossible here to separate the question of environment, which may be more favorable in the city, as some contend, or less favorable, as others sometimes think, or be the slight and almost unmeasurable force which I, myself, shall be content to hold it, until some one has succeeded in measuring it.

Mental heredity, on the other hand, has been measured, and the results are in substantial agreement.[2]

It is not the purpose of the present communication to present these figures from "Who's Who" as a proof of heredity, but only to point out that there is nothing in the distribution of the birthplaces of leading Americans to conflict with the strongest belief in the force of inheritance, should one happen to have gained such a belief from other sources.

FREDERICK ADAMS WOODS

BROOKLINE, MASS.,
February 20, 1909

[1] Conf. J. McK. Cattell, "A Statistical Study of American Men of Science," III., SCIENCE, N. S., Vol. XXIV., No. 623, December 7, 1906. A. Odin, "Genèse des grands hommes," 2 vols., 1895.

[2] Conf. F. Galton, "Natural Inheritance," London, 1889. K. Pearson, "On the Inheritance of Mental and Moral Qualities in Man, and its Comparison with the Inheritance of Physical Characters," *Biometrica*, Vol. III., 1904. E. L. Thorndike, "Measurements of Twins," *Arch. of Philosophy, Psychology and Scientific Methods*, No. 1, September, 1905. F. A. Woods, "Mental and Moral Heredity in Royalty," *Popular Science Monthly*, August, 1902, to April, 1903. Same with additions and further measurements, New York, 1906.

SCIENTIFIC BOOKS

The Principles of Mechanics for Students of Physics and Engineering. By HENRY CREW, Professor of Physics in Northwestern University. 8vo, 295 pp. New York, Longmans, Green & Company. 1908.

This book represents a course which Professor Crew has given for several years at Northwestern University to students intending to specialize in physics and in engineering. The students have had a class and laboratory college course in general physics and more or less work in elementary calculus. Professor Crew states in the preface that his purpose is "to lead the student to clear dynamical views in the shortest possible time without sacrificing him upon the altar of logic, yet pursuing a route which he can afterwards follow with safety." The plan is to confine the treatment "to that part of mechanics which is common ground for the physicist and the engineer" (again quoting the preface). The general dynamical principles involving advanced calculus and analysis are accordingly not included. There are six chapters, one on kinematics, two on kinetics, one on friction, one on elasticity and a short chapter on fluid motion. As the title of the book indicates, the principles are emphasized rather than the applications. In making such a book, every one will, of course, have his own ideas as to topics to be included and those to be omitted. Professor Crew's book represents a course of the essentials, which has been selected after actual classroom experience. An excellent feature is the attention given to rotational dynamics, a part of mechanics on which many text-books are weak. The "illustrative problems" and "examples for practise" scattered through the book are very simple, avoiding involved analyses and calculations.

While the book is intended both for students of physics and of engineering, we believe it will appeal more strongly to the student of physics and this is not so much in its subject-matter as in its temper. For the general student, the purpose of the book is admirable—namely, to take the student in the